* 1. \*\*Яке призначення файлу /var/log/dmesg?

Usually contains the kernel messages log when the system boots. When the Linux operating system is started, the kernel displays a variety of information about the boot process, such as the detected devices, the resources they use, and other diagnostic messages.

The main types of information that can be found in this file include:

Equipment Information

Driver Notifications

Errors and warnings

Other diagnostic messages

* 1. \*\*Для чого розроблено FHS?

This is a standard that defines the structure of directories and files in the file system for Unix-based operating systems, in particular Linux. Its main purpose is to simplify the distribution of files and directories in the system, ensure the portability of software and promote the consistent development of various Linux distributions.

* 1. \*\*Які основні команди є у Linux для перегляду та конфігурації мережі

The ifconfig command displays information about network interfaces, including their IP addresses, MAC addresses, status, and other information.

The ip command provides advanced functionality for working with network interfaces and routes.

The netstat command displays a variety of network statistics, including active connections, ports, routing tables, and other information.

An alternative to netstat, the ss command also displays information about network connections, ports, routes, and sockets.

The route command displays or modifies the routing table of IP packets in the system.

NetworkManager command line interface that allows you to manage the network, including Wi-Fi, VPN, and more.

**Хід лабораторної роботи**

1. Початкова робота в CLI-режимі в Linux ОС сімейства Linux:

Запустіть віртуальну машину VirtualBox, оберіть CentOS та запустіть її. Виконайте вхід в систему під користувачем: CentOS, пароль для входу: reverse ***(якщо виконуєте ЛР у 401 ауд.)*** та запустіть термінал.

Запустіть віртуальну машину Ubuntu\_PC ***(якщо виконуєте завдання ЛР через академію netacad)***

Запустіть свою операційну систему сімейства Linux ***(якщо працюєте на власному ПК та її встановили)*** та запустіть термінал.

1. Опрацюйте всі приклади команд, що представлені у лабораторних роботах курсу ***NDG Linux Essentials - Lab 13: Where Data is Stored*** та ***Lab 14: Network Configuration.*** Створіть таблицю для опису цих команд

|  |  |
| --- | --- |
| Назва команди | її призначення та функціональність |
| pstree | If you want to view file tree |
| ps | Another way of viewing processes(only shows the current processes running in the current shell.) |
| ps  --forest | similar to the pstree command, it shows lines indicating the parent and child relationship |
| ps aux/ps -ef | To be able to view all processes on the system execute either |
| head | filter |
| less | make the output of the ps command more manageable. |
| -u | To use the traditional UNIX option to view the processes of a specific user |
| top | command has a dynamic, screen-based interface that regularly updates the output of running processes. |
| K | Terminate the runaway process. |
| R | Adjust the priority of the process. |
| uptime | command or directly by displaying the contents |
| free | command without any options provides a snapshot of the memory being used at that moment. |
| -s | option (how often to update) and specify that number of seconds |
| kill | terminate the processes of their own choice, rather than letting the system choose. |
| journalctl | The standard method for viewing journald-based logs |
| file | users can check the file content type before they view it to make sure that it is safe to view. |
| lastb /last | commands can be used to view the /var/log/btmp and /var/log/wtmp files respectively. |
| dmesg | command can be used to view the kernel ring buffer, which holds a large number of messages that are generated by the kernel.‌⁠​​⁠​ |
| grep | if a user were troubleshooting problems with a USB device, then searching for the text USB |
| -i | option is used to ignore case |
| dpkg -L packagename | command to get the list of file locations. |
| rpm -ql packagename | command for the list of the locations of the files that belong to that application. |
| ifdown eth0 | The widely accepted method of making changes to a network interface is to take the interface down |
| ifup eth0 | make the desired changes to the configuration file, and then bring the interface back up and into service |
| service network restart | Another less specific method is to restart the system’s networking entirely |
| service | Will save and close. Notice that no colon : is used in this case. |
| host | works with DNS to associate a hostname with an IP address. |
| Ifconfig/ ip addr show | stands for interface configuration and is used to display network configuration information (can also be used to modify network settings temporarily). |
| ip | differs from ifconfig in several important manners, chiefly that through its increased functionality and set of options, it can almost be a one-stop shop for configuration and control of a system’s networking. |
| route | To view a table that describes where network packages are sent |
| -n | Some users prefer to display this information with numeric data only |
| ping | can be used to determine if another machine is reachable. |
| -c | To limit how many pings to send |
| netstat | powerful tool that provides a large amount of network information. It can be used to display information about network connections as well as display the routing table similar to the route command. |
| -i | to display statistics regarding network traffic |
| -r | to display routing information |
| -t | stands for TCP (recall this protocol from earlier in this chapter) |
| -l | stands for listening (which ports are listening) |
| -n | stands for show numbers, not names. |
| ss | is designed to show socket statistics and supports all the major packet and socket types. |
| dig | when you need to test the functionality of the DNS server that your host is using. |
| ssh | allows you to connect to another machine across the network, log in and then perform tasks on the remote machine. |
| exit | To return back to the local machine. |